Bmk. No. B-14
First Assistant Engineer PLD Class I, XH-4742-12

MAJOR DUTIES

Serves as 1st Assistant Engineer on a Class I pipeline dredge (18" discharge and over). The dredge is either a diesel-electric, steam, or steam-electric powered self-propelled cutterhead or dustpan dredge operating in inland waters of the U.S. Serves as the principal assistant to the Chief Engineer in the operation, maintenance, and repair of all engine room and associated machinery, refrigeration, plumbing, heating, and electric/electronic systems and attendant plant. Is assigned as a shift engineer and stands a regular watch and is responsible for the engine room work activities during that shift. Notifies the Chief Engineer in case of major breakdown of equipment and in the absence of the Chief Engineer serves in that capacity. In this capacity, accomplishes the following:

1. As principal assistant to the Chief Engineer and relief engineer, participates with the chief in his supervisory planning, work direction, and administration duties and responsibilities and insures that his orders are carried out by various work crews. Discusses feasibility of repairs and methods and procedures to be followed by crews on watch. Regularly assists Chief Engineer in planning work schedules, outlining repairs, making cost estimates, and preparing performance appraisals on employees on all shifts. Acts in the absence of Chief Engineer and is responsible for the effective and continuous operation of all mechanical and electrical equipment aboard the dredge and is on 24-hour call.

2. Exercises supervisory responsibility over the dredge engine room crew on a shift, employed in any of a variety of trades occupations including assistant engineer, strikers, marine-oilers, fireman-water tenders, welders, machinists, marine electricians, and electronics mechanics.

a. Exercises shift watch responsibility for handling controls, operation and maintenance, and participating in the repairs of all engine room machinery and equipment including the main propelling engines, pumping engines, auxiliary pumps, machinery on the vessel and attendant plant and the electric/electronic systems. Maintains continuous operating efficiency to prevent damage to machinery. Makes regular and periodic inspections by visual and auditory means of all machinery to determine the operating condition and the need for maintenance and repairs. Makes minor adjustments and emergency repairs on own initiative and reports major defects to the Chief Engineer. Accomplishes repairs such as replacing bearings, castings, etc.; repairing fuel lines; grinding valves; replacing cylinders, pistons, and shears in auxiliary pumps and machinery; and removing and replacing complete assemblies. Assists in making major repairs and overhauls during layup. Assists in painting equipment and keeping the engine room clean.

b. Operates controls to start, stop, reverse, and regulate the speed of propelling engines on signal from the pilothouse. Operates dredging pumps and machinery according to signals from the mate (on dustpan dredges) or the leverman (on cutterhead dredges). Controls the operation of heating, refrigeration, and plumbing systems by manipulating necessary winches, throttles, and switches. Checks and controls the quantity of fuel oil, water, etc., furnished for proper operation of the dredge machinery. Observes gages such as pressure gages, vacuum gages, fuel oil gages,

tachometers, pyrometers, etc., to determine the proper functioning of machinery. Makes inspections to check oil levels, motor generators, gearboxes, generator temperatures, fuel levels, etc. Checks and controls the operation of heating, refrigeration, plumbing, and water supply systems for the dredge noting any unusual or abnormal conditions and determines the causes and remedial action necessary. Prepares reports of fuel oil and lubrication consumption and records readings of the gages during the watch.

c. Supervises and directs the shift crew in oiling, cleaning, painting, making adjustments and repairs, and keeping the engine room clean. Instructs and trains subordinates in procedures and methods and observes their work for accuracy and compliance with instructions. Lays out the work and instructs subordinates on unusual or difficult work and inspects operations and completed work. Trains subordinates and regularly inspects their work. Orients new employees and conducts exit interviews with employees who leave the service. Provides input to the Chief Engineer concerning subordinates' performance appraisals. Reports disciplinary problems to the Chief Engineer for resolution. Prepares shift reports reflecting the work activities during the shift and maintains an engine room log of activities. As a supervisor of others, instructs and trains subordinates in the safe and efficient performance of their duties and studies the operations directed with a view to correcting or reporting for correction any unsafe condition or practice that might cause injury to employees or persons or property damage.

3. During layup periods may be assigned to other essential work in the District depending on the needs of the organization, individual qualifications, and ability of the employees involved and effective skills utilization. Is also subject to assignment where needed during high water emergencies.

Performs other duties as assigned.

SKILLS AND KNOWLEDGES

Is required to possess a U.S. Coast Guard Chief and 1st Assistant Engineer's license commensurate with the type engine room machinery and equipment, horsepower, and characteristics of the vessel to which assigned. A knowledge of the dredge steam, steam electric, or diesel electric mechanical, hydraulic, electrical, and/or electronic equipment systems, and auxiliary plant and machinery, and the related skill requirements to diagnose problems and malfunctions and supervise and participate in the repair, replacement, and modification of such machinery, engines, and systems. Applies the knowledge to understand how such equipment and systems operate individually or in combination and the ability to plan and lay out repair, replacement, maintenance, and modification plans and requirements ranging from those of a minor nature to those of extreme complexity. Applies a knowledge of the fuel and water treatments associated with the various equipment and systems.

Knowledge and ability to interpret and apply working drawings, sketches, diagrams, blueprints, and various information reflected in technical manuals. Applies a knowledge of advanced shop math to accomplish computations pertinent to electricity and electronics, electrical equipment, air conditioning and heating, refrigeration and mechanical dimensions, tolerances, and voltages. Applies skill and knowledge in the use of a variety of testing instruments including refrigeration gages and temperature testers in diagnosing problems and malfunctions, and a variety of measuring

devices including feeler gages, vernier calipers, inside and outside calipers and micrometers, thread gages, dial indicators, screw pitch gages, protractors, dividers, composers, steel squares, clinometers, etc. Applies skill to accomplish work to tolerances of .001 inch.

Skill and knowledge in the use of lathes, shapers, drill press, milling machines, honing equipment, grinders, jig borers, jog grinders, power hacksaws, electric and acetylene welding and flame cutting processes, and a variety of electric and hand tools common to the trades involved. Applies a knowledge of the characteristics of a variety of metals and alloys such as stainless steel, monel, brass, bronze, babbit, silver, aluminum, mild and hardened steels, etc.

RESPONSIBILITY

Works under the general supervision of the Chief Engineer who outlines work schedules and plans for repair work to be accomplished. Recommends and participates changing in work plans to prevent delays, shutdowns, or damage or to increase efficiency. Accomplishes and directs minor adjustments and repairs on own initiative and reports major problems and malfunctions to the Chief Engineer and participates with him in determining the action to be taken. Supervises the crew and personally makes major repairs as specified by the Chief Engineer and accomplishes such work under his general supervision. Supervisor is on call at all times to provide guidance and assistance. Work is spot checked during operation and periodically given a more detailed inspection for operational efficiency. Is in technical charge of the engine room during his shift and when serving as Chief Engineer. Work is guided by written and oral instructions; operational and repair manuals; drawings, wiring diagrams, and sketches; and standard marine engine room practices. Is responsible for insuring that job requirements and engine room work activities comply with established safety procedures and regulations.

WORKING CONDITIONS

Work is performed inside and outside subjecting employee to varying climatic conditions, abnormal noises, temperature, danger of burns, irritation from grease and oils, bruises, strains, danger from attending moving machinery, falling overboard, electrical shock, falls on slippery decks or steep stairways, possible drowning, and crankcase explosion.

PHYSICAL EFFORT

Incumbent performs work from ladders, scaffolding, and platforms and where the parts, equipment, or systems are in hard-to-reach places. Work requires the incumbent to stand, stoop, bend, kneel, climb and work in a tiring and uncomfortable position. Frequently lifts, carries, and sets up parts and equipment that weigh up to 40 pounds.